WCRP
World Climate Research Programme

The Grand Challenge on (Regional) Climate Information

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The REGIONAL CLIMATE INFORMATION GRAND CHALLENGE

Initially established as 3 time-scaled frontiers with a 4th frontier on how to transform this knowledge into decision relevant information

Frontier 1: **Intraseasonal and seasonal predictability and prediction**
Frontier 2: **Decadal variability, predictability and prediction**
Frontier 3: **Reliability and value of long-term regional climate change projections**
Frontier 4: **Informing the risk management and decision making space**

In order to bring cross-WCRP expertise together in an integrated way in mid-2014 it was proposed to instead:

- Consider the issues in Frontiers 1, 2 and 3 through the 'lens' of ***informing risk management and decision making***,
- Adopt a focus on cross-regional and cross-timescale issues
- Seek to provide information that constitutes a solid and targeted basis for decision making concerning risk management with active and two-way involvement with stakeholders.

The way forward

A small steering group was set up:

- Lead contact: Clare Goodess (WGRC)
- Steering group members: Francisco Doblas-Reyes (WGSIP), Lisa Goddard (CLIVAR), Bruce Hewitson (WGRC), Jan Polcher (GEWEX & WGRC) supported by Roberta Boscolo (WCRP)
- With the aim of identifying a limited number of specific and tractable research initiatives (which might be expressed as scientific questions)

Break out sessions and side-events at relevant 2014 meetings

- Pan-CLIVAR/GEWEX in The Hague, July
- WCRP/IPCC in Bern, September
- Climate Symposium, Darmstadt, October
- AGU, San Francisco, December

Expert workshop on “distillation”, Santander, October 2014

The steering group (Lisa Goddard by Skype) plus Dave Carlson, Boram Lee and Michel Rixen, with Guy Brasseur by Skype

Aim:

- To agree outline and main points of refined focus on achievable goals to propose to JSC
- Further development of the white paper and implementation strategies to follow, according to approval and guidance from JSC 36

Overarching objective:

- To close the gaps in our scientific understanding & information that would maximise the value content of climate information, at all time scales, of interest to a wide range of regional stakeholders

Implies name change to:
"WCRP Grand Challenge on Climate Information"
– with some favouring adding "for regional applications"

Targets:

- To explore & contribute to frameworks for defining climate information needs
- To understand variability & change & their interaction in models & observations
- Separation of the local & remote contributions to regional variability & change signals
- Evaluation of the contribution (added value) from downscaling
- Distillation of multi-model multi-method predictions & projections into defensible regional messages
- To advance knowledge by taking advantage of climate research targeting different time scales

Expected outcomes:

- Innovative partnerships in & beyond WCRP
- Appropriate metrics & guidance relating to these targets
- Propagation of values standards on "**climate information**" throughout WCRP programmes

Implementation mechanisms:

- Targeted "**frontier projects**"
- Expert meetings (distillation, added value of downscaling in conjunction with CORDEX 2016?.....)
- CORDEX flagship projects
- Review/synthesis papers (e.g., major paper in 2020)
- Fundraising (for general oversight & specific activities)
- Partnerships (e.g., WWRP, FE, CR4D, GFCS, MIPs, TGICA, PROVIA, WCRP WGs etc)
- Linkages with other GCs via named Point of Contact

Summary

Most urgent improvement (frontier projects):

- Advance knowledge of regional information through innovation of methodology & analysis with special emphasis on using a lens of multi-scale climate processes
- Explicitly innovate new approaches to distil regionally-relevant information from different sources within the WCRP programs to reconcile the differences across data sources, data types, & relevant scales of time & space
- Integrate the research depth within multiple foci; e.g. integrate understanding of extremes with local feedbacks & IAV of global drivers

Most urgent observational or data deficiency

- Estimates of obs. uncertainty & how to use them
- Meeting needs of process-based evaluation/assessment